FINAL REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY REVISED 10 MAY 1988

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Project No. 8741863D

(L-ABC/Phase 2)

FINAL REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY

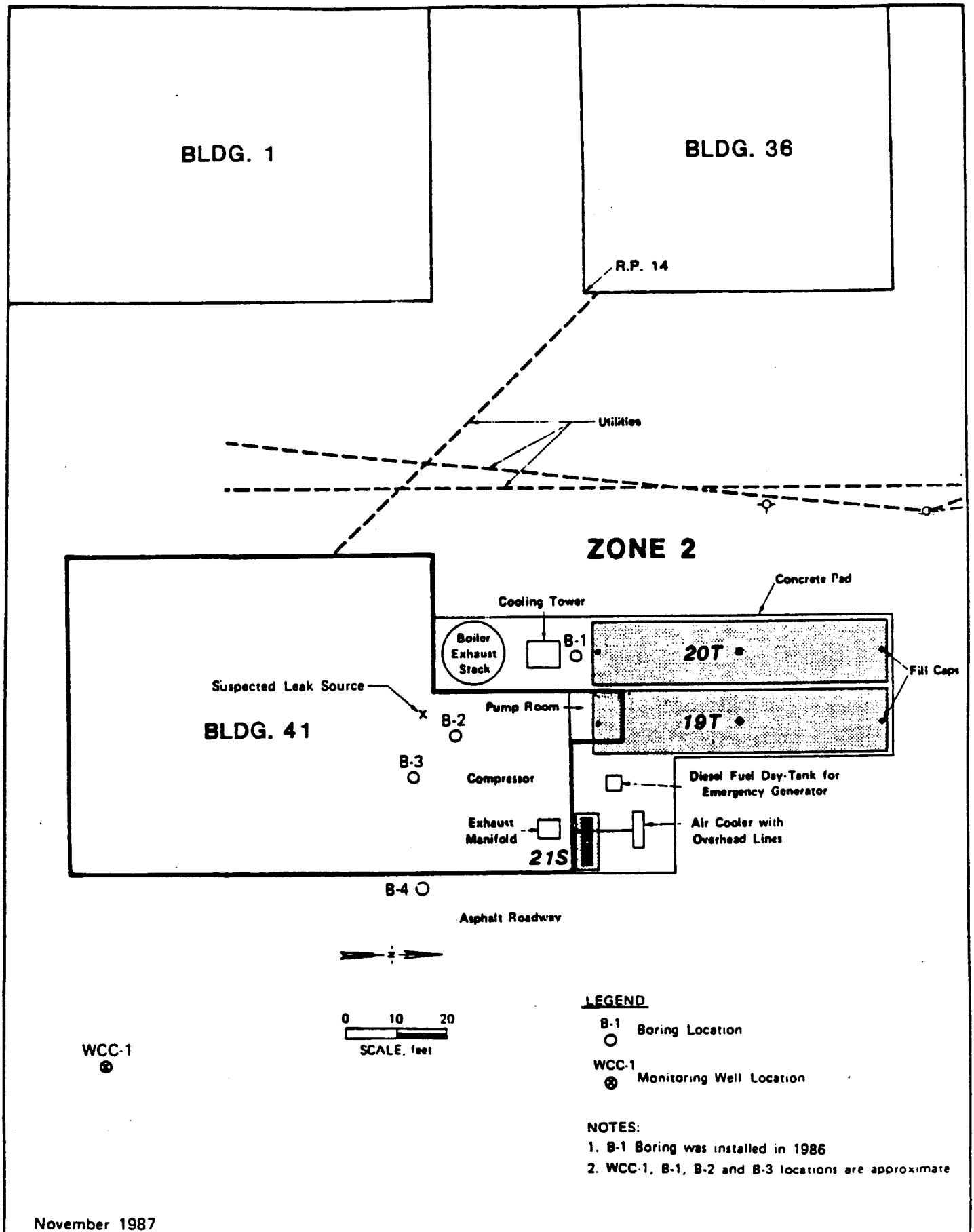
1.0 INTRODUCTION

This report presents the results of Woodward-Clyde Consultants' Phase II subsurface investigation. This investigation was performed to evaluate the source of elevated concentrations of organic compounds in the soil and ground water near tanks 19T and 20T at Douglas Aircraft Company's C6 facility in Los Angeles, California. The location of the facility is shown on Figure 1.

The results of the Phase I Underground Tank Leak Investigation Report (June 1987) indicated the presence of petroleum hydrocarbons in the soil to a depth of 50 feet in the vicinity of tanks 19T and 20T. In addition, 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and benzene was detected in water samples collected from observation Well WCC-1, which was installed at a location thought to be downgradient of the tanks. The locations of borings and wells installed during the Phase I work are shown on Figure 2.

2.0 OBJECTIVE

The objective of this phase of the investigation was to evaluate the source of organic compounds in the soil and ground water near tanks 19T and 20T.

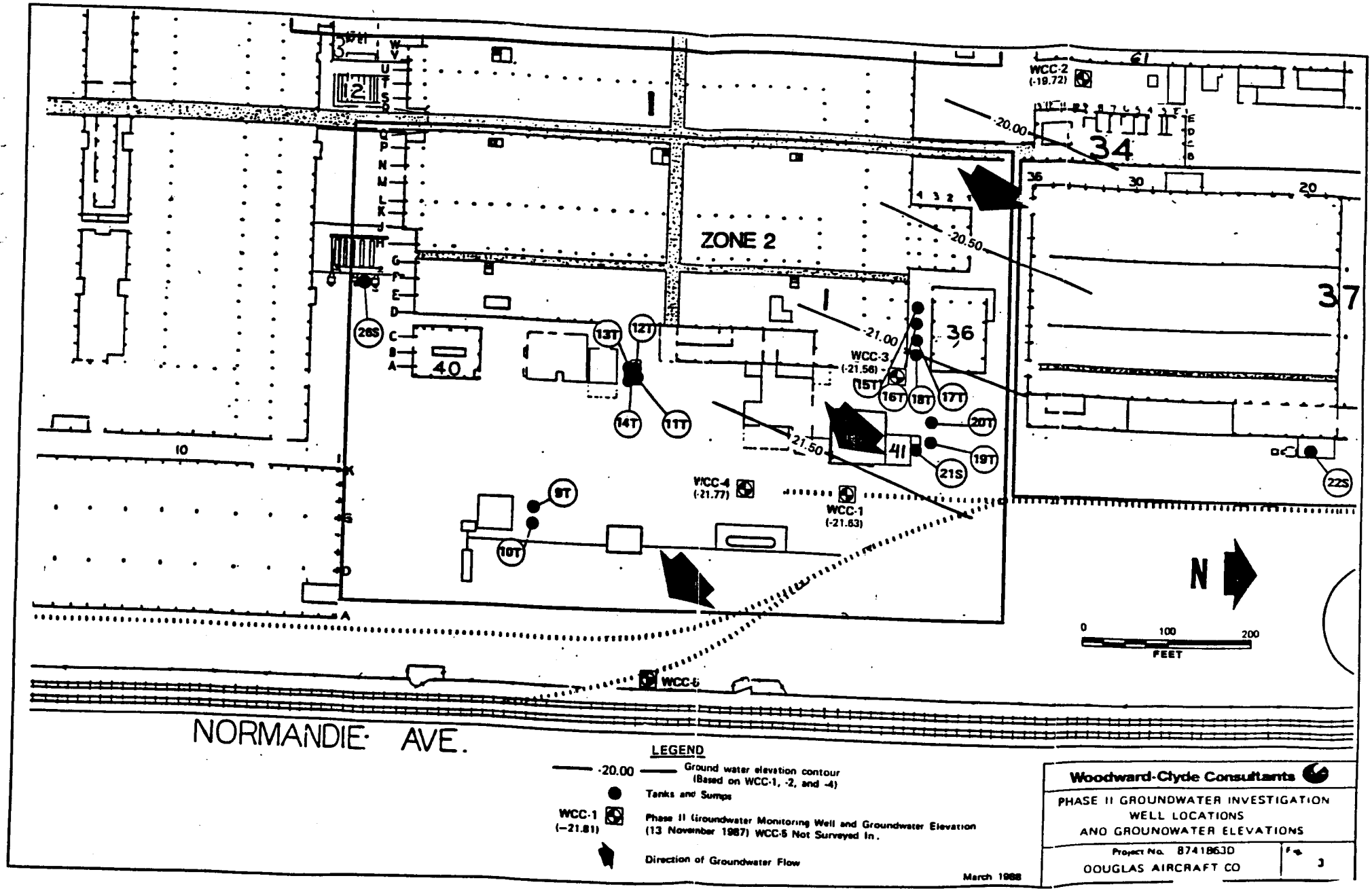


NOTES:

1. B-1 Boring was installed in 1986
2. WCC-1, B-1, B-2 and B-3 locations are approximate

November 1987

Project DOUGLAS AIRCRAFT CO. Project No. 41863B	LOCATION MAP FOR WCC-1, B-1, B-2, B-3, and B-4.	Fig. 2



On 30 October 1987, wells WCC-2, -3, and -4 were developed by Beylick Drilling Company of La Habra, California. Well WCC-5 was developed on 30 November 1987 by the same company. The observation wells were developed by a surge block and sand bailer method, and pumped with a submersible pump until the extracted water was free of visible suspended material. Water samples were collected and analyzed for volatile organics (EPA Method 8240) and petroleum hydrocarbons (EPA Method 8015). The well development and water sampling methods used are discussed in Appendix A.

Ground surface elevations of observation wells WCC-1, -2, -3, and -4 were surveyed on 3 November 1987 by Rattray and Associates, Inc. of Santa Ana, California. Observation well WCC-5 was installed on 24 November 1987 and was not surveyed. The survey provided the ground water elevation data required to evaluate the direction of the ground water gradient. The elevations of the well casings and ground water are summarized in Table 1.

4.0 RESULTS

4.1 Ground Water Elevations

Ground water elevation data collected on 13 November 1987 indicated that in the area defined by wells WCC-1, -2, -3, and -4, the elevation of ground water varies from -19.72 to -21.77 feet (Mean Sea Level [MSL]). These elevations indicate that the water table is over 19 feet below MSL. Water levels from wells completed in deeper aquifers in the vicinity of the site are also below MSL. Water level information from 1983 indicates that the water levels in these deeper aquifers are at approximately -60 feet MSL (Los Angeles Flood Control District). The low ground water levels found in the deep aquifers can be attributed to the

reduced natural ground water recharge caused by urbanization of the Los Angeles Basin and the heavy use of ground water. Channelizing the Los Angeles and San Gabriel rivers also has significantly reduced recharge to the ground water system. The reduced recharge and heavy ground water extraction have produced a ground water overdraft and a subsequent lowering of the water table. The ground water levels in the semi-perched aquifer beneath the facility are probably being influenced by the same factors as the deeper aquifers, resulting in a ground water elevation below MSL.

4.2 Ground Water Gradient

The ground water gradient calculated from ground water elevations taken 13 November 1987 indicated a gradient sloping from the northwest to the southeast. The direction of ground water flow is illustrated on Figure 3. This ground water gradient was calculated through the use of gradient triangulation between wells WCC-1, -2, -3, and -4. The ground water gradient illustrated in Figure 3 is based on data from wells WCC-1, -2, -3, and -4, and may not reflect ground water gradients at other locations at the C6 facility.

4.3 Well WCC-5 Location

The southeast gradient of ground water (discussed in Section 4.2) allowed observation Well WCC-5 to be located along the property line, downgradient of the tank clusters. The location of WCC-5 is shown on Figure 3. The location was selected based on the ground water gradient established from observation wells WCC-1, -2, -3, and -4, and assumes that hydrogeologic conditions are not significantly different in the proposed location of Well WCC-5. This observation well was installed, developed, and sampled in the same manner as wells WCC-1, -2, -3, and -4.

TABLE 2

GROUND WATER ANALYTICAL DATA

Concentrations (ug/l)

COMPOUNDS	WCC-1			WCC-2		WCC-3		WCC-4		WCC-5	
	3/27/87	4/13/87*	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/30/87	1/8/88
1,1-Dichloroethene (1,1-DCE)	2,800	3,700/2,500	3,000	5	2	38,000	88,000	360	1,200	7	4
1,1-Dichloroethane (1,1-DCA)	--	--/--	23	--	--	--	1,000	--	--	--	--
1,1,1-Trichloroethane (1,1,1-TCA)	300	260/120	160	5	--	110,000	54,000	14	35	--	--
Trichloroethene (TCE)	4,600	5,500/3,600	5,200	14	4	10,000	11,000	700	690	1	10
4-Methyl-2-pentanone (MIBK)	--	--/--	--	--	--	54,000	70,000	--	--	--	--
trans-1,2-dichloroethene (trans-1,2-DCE)	--	--/--	75	--	--	--	1,000	2	--	--	--
Chloroform	--	--/--	39	--	--	--	--	2	--	--	--
Toluene	--	--/--	--	6	1	80,000	140,000	--	--	1	--
Benzene	85	110/--	160	--	--	--	--	--	--	--	--
Detection level (ug/l)	50	50/50	20	1	1	1,000	1,000	1	10	1	1

* Duplicate sample also analyzed
-- Not detected

(L-ABC/D-Table 2)

TABLE 3
ANALYTICAL RESULTS FROM WCC-3 SOIL SAMPLES
ug/kg (ppb)

Sample No.	Sample Depth (feet)	1,1,-Dichloroethene (1,1-DCE)	1,1-Dichloroethane (1,1-DCA)	1,1,1-Trichloroethane (1,1,1-TCA)	Toluene	4-methyl-2-pentanone (MIBK)
MW-3-2-3	55	53	98	70	590	ND
MW-3-3-3	65	ND	ND	ND	8	310
Detection Limit		5	5	5	5	30

ND - not detected

(L-ABC/DTable-3)

TABLE 4

ANALYTICAL RESULTS FROM SOIL BORINGS 15TB AND 17TB
(ug/g) ppm

Sample No.	Sample Depth	1,1-DCE	TCE	2-Butanone (MEK)	1,1,1-TCA	Toluene	Ethylbenzene	Total Xylenes	4 Methyl-2-Pentanone (MIBK)
15TB-3-3	10	<1	ND	ND	<1	<1	<1	<1	ND
15TB-4-3	15	ND	10	160	27	870	41	460	ND
15TB-5-3	20	ND	94	1,800	38	6,300	180	1,300	ND
17TB-2-3	5	ND	ND	ND	ND	ND	ND	ND	ND
17TB-3-3	10	ND	ND	ND	<1	<1	ND	ND	ND
17TB-5-3	20	ND	ND	ND	<1	<1	ND	ND	ND
17TB-7-3	30	ND	ND	810	ND	ND	ND	ND	840
Detection Limit									

Note:

ND - Not Detected

Borings 15TB and 17TB were installed on 24 August 1987. Boring logs and analytical data sheets are presented in Woodward-Clyde Consultants report, "Phase III Drilling Program at the Torrance (C6) Facility" dated 15 December 1987.

3. Analytical results obtained from water samples collected from wells WCC-1, -2, -3, -4, and -5 do not indicate the presence of petroleum hydrocarbons other than benzene and toluene. However, halogenated hydrocarbons were found in all of the water samples. The distribution of concentrations appear to indicate a primary source of these compounds near tank cluster 15T through 18T. These tanks and associated piping tested tight during the tank testing program in 1986.

4. Ground water elevations from the shallow semi-perched aquifer ranged from -19.72 to -21.77 feet Mean Sea Level. The negative ground water elevations indicate that the ground water is below sea level.

5. Data obtained from observation wells and Boring B-4 indicate that the piping at tanks 19T and 20T is not the source of the organic compounds in the ground water. The area near tank cluster 15T through 18T appears to be a more likely source. In addition, the petroleum hydrocarbons do not appear to have penetrated greater than 50 feet below the surface, and are confined to the area of Building 41.

6. Water samples from Well WCC-2, the upgradient well, and WCC-5, the perimeter well, had very similar, low concentrations of volatile organic compounds. This may indicate that ground water entering the site contains low levels of organic compounds. The installation of another upgradient perimeter well would be necessary to further evaluate if this condition exists.

APPENDIX A
FIELD PROCEDURES AND METHODOLOGY

A.1 GENERAL INFORMATION

Drilling was performed by A & R Drilling, Inc. of Carson, California. Drilling began on 26 October 1987 and was completed on 24 November 1987. Observation wells were drilled using a CME 75 with 7-inch outside diameter (O.D.) and 10-inch O.D. hollow stem augers.

A.1.1 Observation Well Installation

Observation wells WCC-2, -3, -4, and -5 were constructed of 4-inch, Schedule 40 PVC and set to a depth of about 90 to 91 feet. The observation wells were installed by drilling a 90-foot deep pilot hole with the 7-inch O.D. hollow stem augers used for soil sampling. Upon removal of the 7-inch hollow stem auger from the hole, 10-inch O.D. hollow stem augers were used to ream the pilot hole to a 10-inch diameter. A wooden plug was placed in the lead cutting auger to prevent cuttings and water from entering the inside of the auger. Municipal water was added to the inside of augers as drilling progressed through the water table to offset the hydrostatic pressure of the fine grained flowing sands outside the augers. Two attempts were made to install Well WCC-3 without the use of water, but the bottom 3 to 5 feet of the auger "sanded-in" immediately after knocking out the wooden plug. The "sanding-in" of the augers prevented the wells from being properly constructed. Water had to be used for proper construction of WCC-2, -3, -4, and -5. The

Douglas Aircraft was advised of the locations and contents of the drums, and the need for proper management of the drill cuttings.

A.1.4 Decontamination

Augers and drilling equipment were steam cleaned between borings and wells to minimize the possibility of cross-contamination. The modified California soil sampler and brass tubes were cleaned as follows:

- Deionized water wash to remove mud and soil;
- Deionized water with Liquinox detergent;
- Deionized water rinse to remove detergent;
- Deionized water rinse; and
- Dried with paper towel.

A.2 SOIL SAMPLING

Subsurface soil samples were collected at approximately 45, 55, 65, 75, and 80 feet below ground surface. Soil samples were collected for Organic Vapor Analyzer (OVA) headspace measurements, and for laboratory analyses. Soil samples were collected using a California modified sampler. The California modified sampler holds four brass tubes, and is 18 inches in length. Soil sample depths and OVA headspace measurements are shown on the Boring Logs in Appendix B.

A.2.1 OVA Headspace Measurements

Field OVA headspace measurements were taken from one of the soil samples collected at each sampling depth. This procedure was conducted by extruding the contents of one brass tube into a one pint glass jar. The jar's lid has a

A.3 FIELD OBSERVATIONS

Observations made by Woodward-Clyde Consultants personnel during the drilling and sampling operations were recorded on Boring Logs, as presented in Appendix B. These observations related to visual soil classifications, geologic and stratigraphic comments, observation well construction details, sampling efforts, OVA measurements, and other pertinent information.

A.4 FILTER PACK ANALYSIS

Selection of the proper filter pack material and well screen slot size is essential in collecting a sediment-free or low sediment content water sample. In observation wells WCC-2, -3, -4, and -5 soil samples were collected from 75 or 80 feet below grade for sieve analysis. Filter pack design calculations were made based on the grain size distribution obtained from these soil samples.

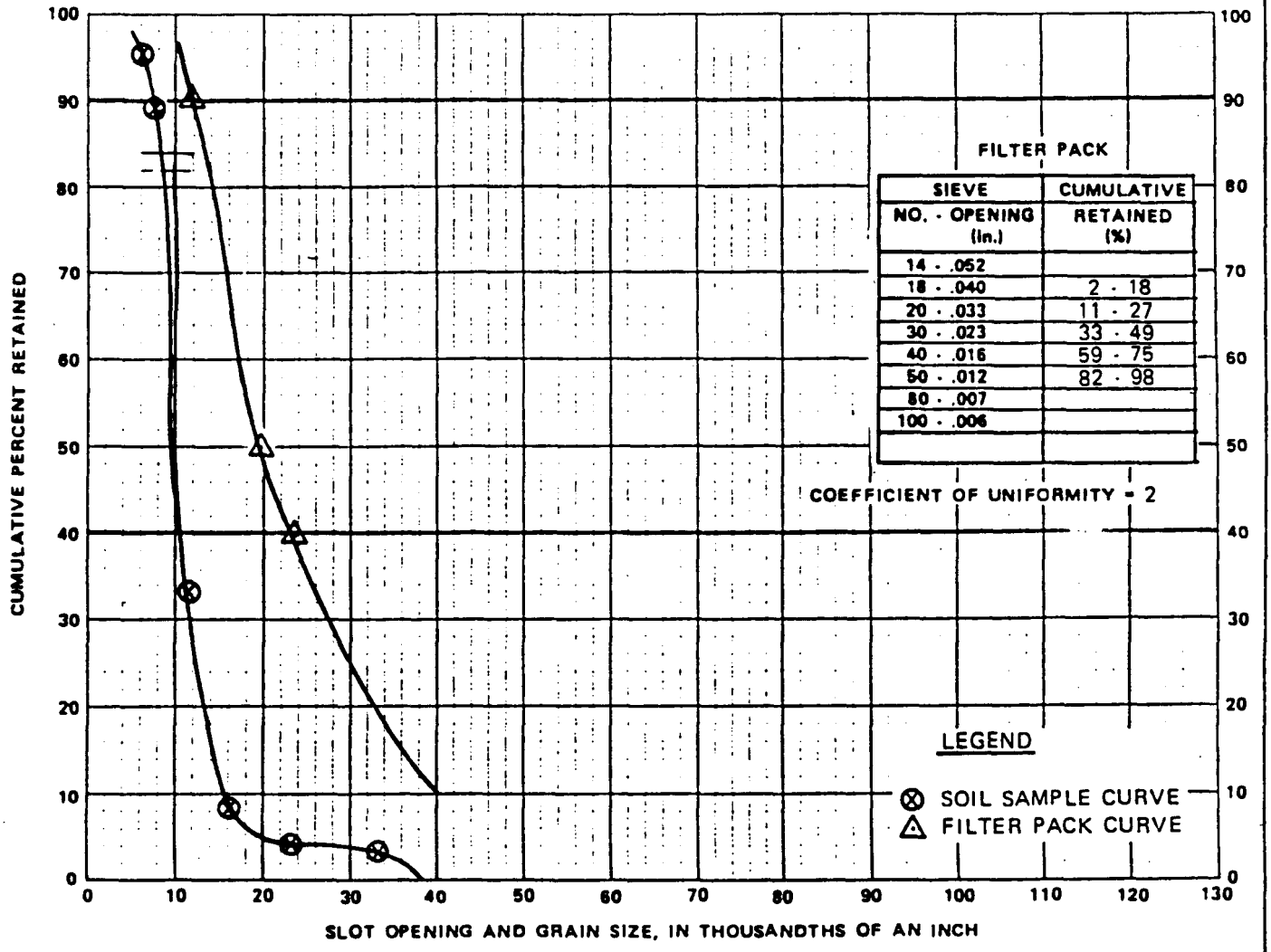
Soil analyses were conducted in the field by collecting a soil sample from below the water table with a California modified sampler. The soil sample was heated with a portable propane stove to evaporate all water from the soil. When the sample was dried, it was weighed on a scale to the nearest gram. The soil sample was then poured into the top of eight sieves and shaken for approximately 5 minutes. The sieve sizes used in the analysis are shown in Figure A-1. The cumulative percent of the soil sample retained in each sieve was weighed and plotted on a sand analysis curve. It is the sand analysis curve that graphically characterizes the grain size distribution of the soil. Sand analysis curves for wells WCC-2, -3, -4, and -5 are illustrated in Figures A-1, A-2, A-3, and A-4, respectively.

Well Name: WCC - 3 Date: 26 October 1982

Well Location: Northeast corner of Building 1, See Figure 3

Sample Depth: 75 - 76.5 feet Performed By: B. Jacobs

Comments:



SIEVE NO. - OPENING (in.)	CUMULATIVE RETAINED (%)
14 - .052	
18 - .040	2 - 18
20 - .033	11 - 27
30 - .023	33 - 49
40 - .016	59 - 75
50 - .012	82 - 98
80 - .007	
100 - .006	

SIEVE NO. - OPENING (in.)	SAMPLE WEIGHT (grms)	CUMULATIVE PERCENT RETAINED (%)	CUMULATIVE PERCENT PASSING (%)
14 - .052			
18 - .040			
20 - .033	8	3	97
30 - .023	13	4	96
40 - .016	25	8	92
50 - .012	100	33	67
80 - .007	268	89	11
100 - .006	284	95	5
Bottom Pan	300	100	0

Notes: Sample Weight - 300 grams

Uniformity Coefficient = $\frac{.011}{.007}$ = 1.57

Recommended Slot Opening: .010 inch

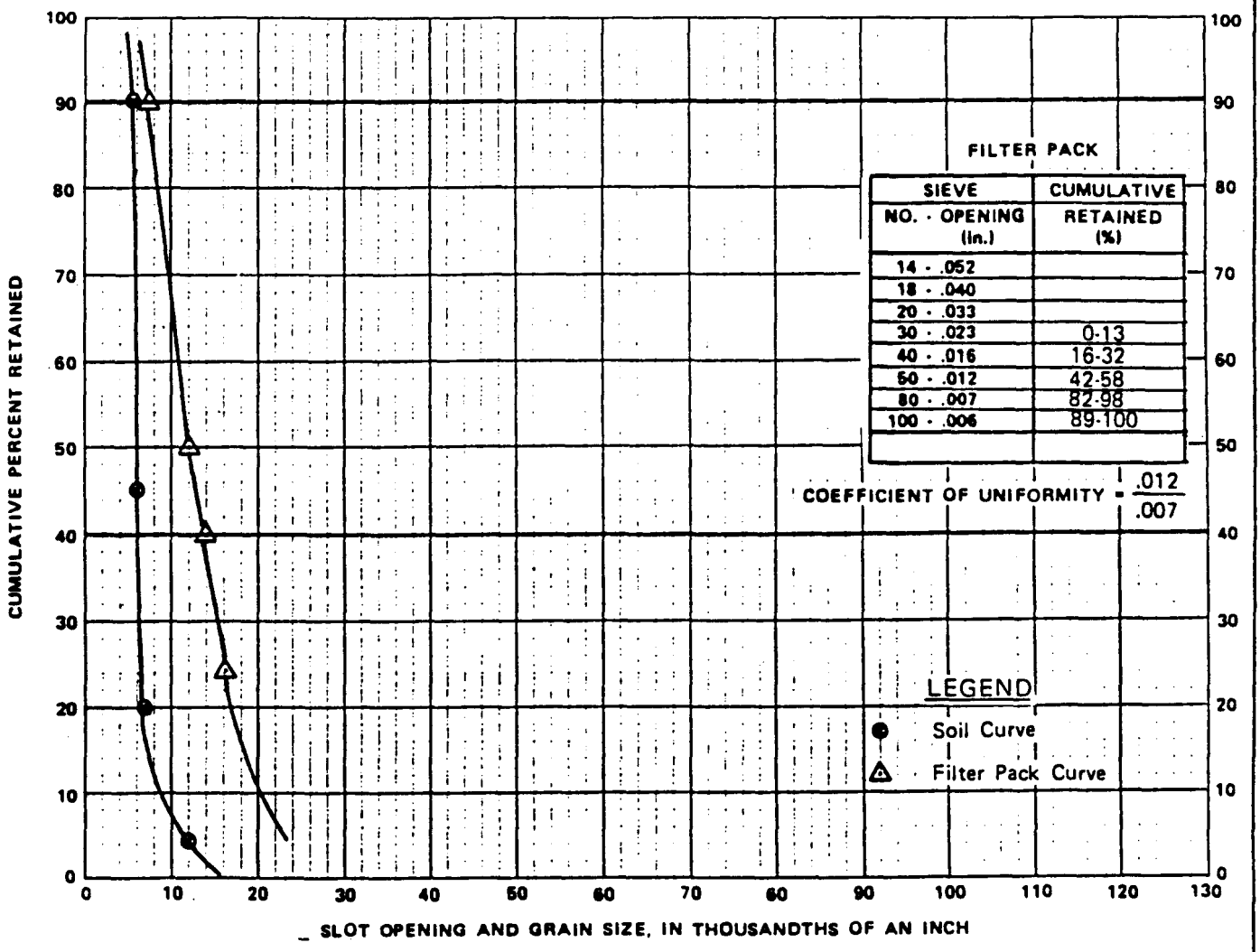
Project DOUGLAS AIRCRAFT Project No. 8741863D	SAND ANALYSIS - WCC-3	Fig. A-2

Well Name: WCC-5 Date: 11/24/87

Well Location: Approximately feet southeast of building G-1

Sample Depth: 75-76.5 feet Performed By: B. Jacobs

Comments: Soil became coarser after 76.5 feet.



SIEVE NO. · OPENING (in.)	SAMPLE WEIGHT (grm)	CUMULATIVE PERCENT RETAINED (%)	CUMULATIVE PERCENT PASSING (%)
14 · .052			
18 · .040			
20 · .033			
30 · .023			
40 · .016	2	0	100
50 · .012	17	5	95
80 · .007	64	20	80
100 · .006	145	45	55
Bottom Pan	317	100	0

Notes: Sample Weight - 320 grams

Soil Uniformity Coeficient = .006 / .005 = 1.2

Recommended Slot Opening: .006 inch

Project	DOUGLAS AIRCRAFT COMPANY	SAND ANALYSIS WCC-5	Fig.
Project No.	8741863D		A-4

165 gallons of water removed during development. Well WCC-2 had 225 gallons removed during development. Well WCC-5 had 300 gallons removed during development. Table A-1 presents the development times and the ground water volumes removed.

The last 50 to 185 gallons removed from the four observation wells was observed to be sediment free.

Water removed from the wells during development was contained and sealed in DOT Class 17E 55-gallon drums adjacent to the wells. The drums were labeled for contents, date, and well number, and Douglas Aircraft's contact employee (Mr. Don Gerber).

Observation wells WCC-2, 3, and 4 were sampled on 2 November 1987. Well WCC-5 was sampled on 30 November 1987 and 8 January 1988. Each observation well had a minimum of three well casing volumes removed before a ground water sample was collected. Electrical Conductivity (EC) and temperature was recorded from each five gallons of ground water removed from the well. Stabilized EC and temperature values indicated that ground water from the aquifer formation was being extracted from the well. Table A-2 presents EC, temperature, and ground water volume data recorded during water sampling. The water removed from the wells is being stored on-site prior to disposal.

Observation wells were bailed with a 3-1/2 inch diameter PVC bailer. This bailer was washed with Liquinox detergent and rinsed with deionized water between usage in each well. The PVC bailer was only used for well volume removal and was not used for water sampling. After a minimum of three well volumes had been removed, and EC and temperature stabilized, a water sample was collected using a clean, 2-inch diameter

TABLE A-2

WATER SAMPLING ELECTRICAL CONDUCTIVITY AND TEMPERATURE DATA

Well No.	Sample Date	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C°	pH
WCC-2	11/2/87	0-5	750	22.5	NA
		5-10	1,000	22.5	NA
		10-15	1,000	22.5	NA
		15-20	1,000	22.5	NA
		20-25	1,000	22.5	NA
		25-30	1,000	22.5	NA
		30-35	1,000	22.5	NA
WCC-3	11/2/87	0-5	2,250	23.0	NA
		5-10	2,100	23.0	NA
		10-15	1,950	22.5	NA
		15-20	2,000	22.5	NA
		20-25	2,000	22.5	NA
		25-30	1,900	22.5	NA
		30-35	1,800	22.5	NA
WCC-4	11/2/87	0-5	1,000	25.0	NA
		5-10	1,050	22.5	NA
		10-15	1,050	22.5	NA
		15-20	1,050	22.5	NA
		20-25	1,050	22.5	NA
		25-30	1,050	22.5	NA
		30-35	1,050	22.5	NA
WCC-1	11/12/87	0-2.5	1,400	22.5	NA
		2.5-5.0	1,400	22.5	NA
		5.0-7.5	1,400	22.5	NA
		7.5-10.0	1,400	22.5	NA
WCC-2	11/12/87	0-5	700	22.0	NA
		5-10	700	22.0	NA
		10-15	700	22.0	NA
		15-20	700	22.0	NA
		20-25	710	22.0	NA
		25-30	710	22.0	NA
		30-35	710	22.0	NA
WCC-3	11/12/87	0-5	2,100	22.5	NA
		5-10	2,000	23.0	NA
		10-15	1,950	23.0	NA
		15-20	1,910	23.0	NA
		20-25	1,900	23.0	NA
		25-30	1,900	23.0	NA
		30-35	1,900	23.0	NA
WCC-4	11/12/87	0-5	1,200	22.5	NA
		5-10	1,200	22.5	NA
		10-15	1,150	22.5	NA
		15-20	1,050	22.5	NA
		20-25	1,050	22.5	NA
		25-30	1,100	22.5	NA
		30-35	1,000	22.5	NA

(L/ABC-DAC-A2)

Teflon bailer. Each well was sampled with a different 2-inch bailer to minimize the potential for cross-contamination.

BORING LOCATION				ELEVATION AND DATUM	
DRILLING AGENCY		DRILLER		DATE STARTED	DATE FINISHED
DRILLING EQUIPMENT				COMPLETION DEPTH (ft)	ROCK DEPTH (ft)
TYPE OF WELL CASING		SCREEN PERFORATION		DIAMETER OF BORING (in.)	DIAMETER OF WELL (in.)
No. OF SAMPLES	DIST.	UNDIST.	CORE	LOGGED BY	CHECKED BY
WATER DEPTH (ft)	FIRST	COMPL	24 HRS.		

DEPTH (feet) | DESCRIPTION | WELL LOG | SAMPLE INFORMATION: No. | Type | Blow Count | O.V.A. (ppm) | Drilling Rate (Time) | REMARKS

Medium dense, moist, light brown, SILTY fine grained SAND (SM).

Unified Soil Classification System (USCS).

Sample Identification Number.

Sample Location and Type.

5

Concrete

Bentonite Pellets

10

Native Soil

Monterey No. 0/30 Sand Filter Pack

15

Screen

Modified California Sampler.

20

Bentonite (Volclay) Grout

25

Number of Blows Required to Advance Sampler One Foot using a 140 Pound Downhole Hammer with a 30-inch Drop.

Organic Vapor Analyzer (OVA) Readings (field headspace).

30

Rate at which Drilling Progresses. Time at depths noted.

Remarks or Comments by Driller or Drilling Supervisor.

35

Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 87418630

KEY TO BORING LOG

Fig. B-2

WOODWARD-CLYDE CONSULTANTS

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	GRAPHIC LOG: OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	Lense of volcanic (?) angular gravel (continued).								
40								0930	
	Becomes moist and hard.								
45					1	X	59		
	Very hard, moist, dark brown, SILTY CLAY (CL).								
50	Lenses of very hard, carbonate cemented concretions.			1	2	X	26		
55								1010	
60	Increasing silt.								
	Medium dense, dry, tan, fine SAND (SP).			7.5	3	X	57		
65	Dense, dry, whitish-tan, fine SAND (SP).								
70	Becomes damp and very dense.			2.5	4	X	50/5"		
	Very stiff, damp, dark brown SILT (ML).								
75	Becomes wet.			7.8	5	X	50/5"		Water encountered at 74.5 feet.
	Very dense, wet, brown, fine SAND (SP).								

Project: DOUGLAS AIRCRAFT COMPANY TORRANCE
Project No.: 41863B

CONT. LOG OF BORING WCC-1

Fig. B-2

LA/OR-0783-236R

WOODWARD – CLYDE CONSULTANTS

BORING LOCATION	WCC-2 See Figure 2			ELEVATION AND DATUM	Top of casing @ 50.59 ft.
DRILLING AGENCY	A & R Drilling, Inc.	DRILLER	M. Smith	DATE STARTED 10-28-87	DATE FINISHED 10-28-87
DRILLING EQUIPEMENT	CME 75, 10--inch H.S.A.			COMPLETION DEPTH (ft) 90.6	ROCK DEPTH (ft) –
TYPE OF WELL CASING	4" Sch. 40 PVC	SCREEN PERFORATION	.010 Slot	DIAMETER OF BORING (in.) 10	DIAMETER OF WELL (in.) 4
No OF SAMPLES	DIST. –	UNDIST. 5	CORE –	LOGGED BY H. Reyes	CHECKED BY B. Jacobs
WATER DEPTH (ft)	FIRST 73	COMPL. –	24 HRS. 71.1		

DEPTH (feet)	DESCRIPTION	WELL LOG	SAMPLE INFORMATION No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (Time)	REMARKS
	Asphalt						1306	Background OVA reading = 5 ppm
	Medium stiff, very moist, dark yellowish brown, SANDY CLAY (CL).							
	Becomes very dark grayish brown.							
5							1308	
	Color change to yellowish brown. Becomes stiffer less moisture, SANDY CLAY (CL).							
10								
15							1317	
	Continued SANDY CLAY (CL). Less stiff, more moist.							
20							1319	
	Grades to SILTY CLAY (CL).							
	Medium stiff, very moist, olive brown, SILTY CLAY.							
25							1323	
30							1327	
35							1333	

Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8741863D	LOG OF BORING WCC-2	Fig. B-1-1

WOODWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	(continued) Very dense, wet, olive, fine grained to very fine grained SILTY SAND (SM), micaceous, with some clay interbedding and iron oxide staining.		5		50/3"	5	1600	
90	Bottom of Boring at 90.5 feet.							Note: 48 gallons of city water used to offset hydrostatic head of flowing sands during well installation.
95								
100								
105								
110								
115								
120								
125								

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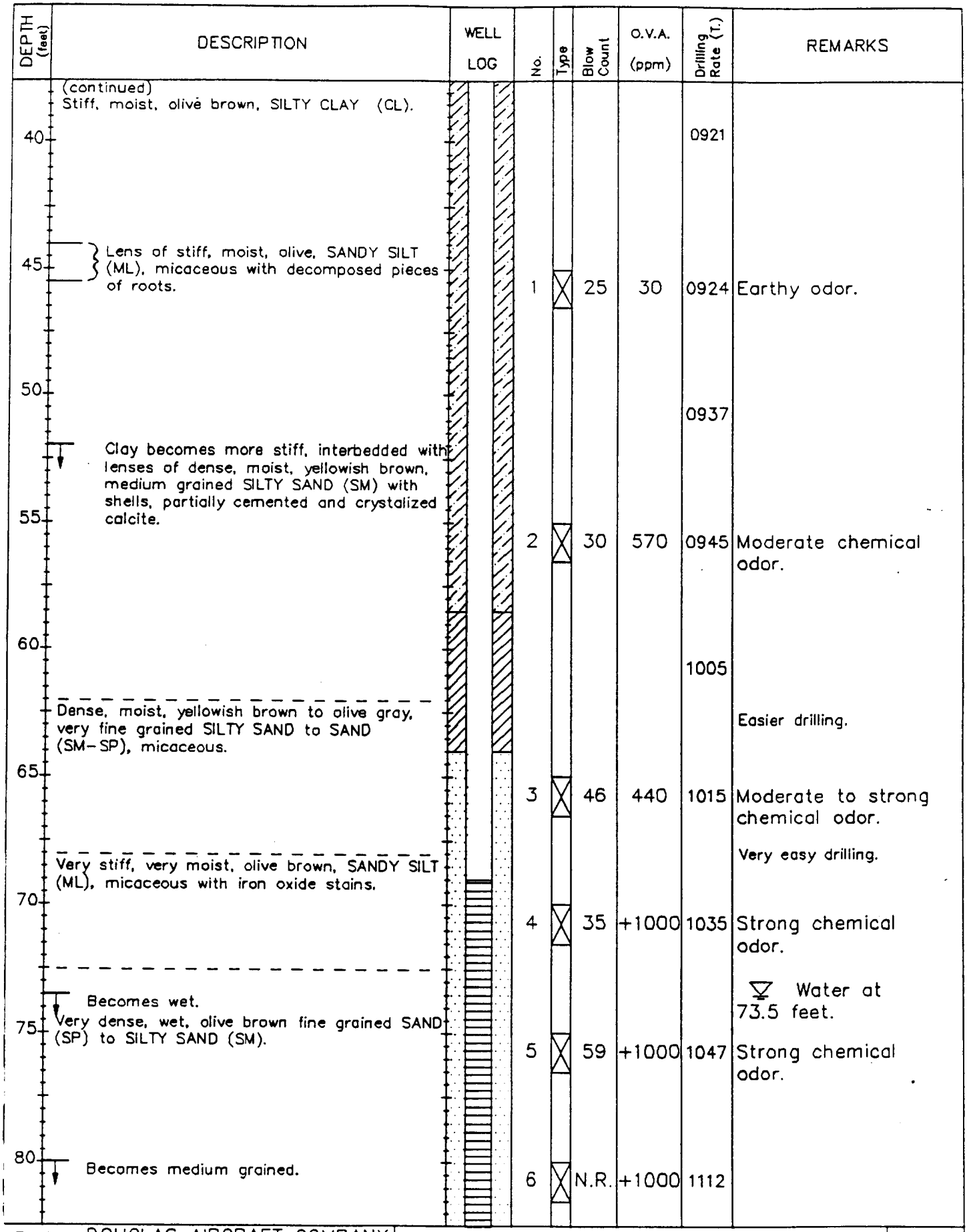
CONT. LOG OF BORING WCC-2

Fig. B-1-3

WOODWARD-CLYDE CONSULTANTS



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CONT. LOG OF BORING WCC-3

Fig. B-2-2

WOODWARD-CLYDE CONSULTANTS

BORING LOCATION	WCC-4 See Figure 2		ELEVATION AND DATUM	Top of casing @ 49.69 ft.	
DRILLING AGENCY	A & R Drilling, Inc.	DRILLER M. Smith	DATE STARTED	10-27-87	DATE FINISHED 10-27-87
DRILLING EQUIPEMENT	CME 75, 10-inch H.S.A.		COMPLETION DEPTH (ft)	91.5	ROCK DEPTH (ft) –
TYPE OF WELL CASING	4" Sch. 40 PVC	SCREEN PERFORATION .010 Slot	DIAMETER OF BORING (in.)	10	DIAMETER OF WELL (in.) 4
No OF SAMPLES	DIST. –	UNDIST. 8 CORE –	LOGGED BY	H. Reyes	CHECKED BY B. Jacobs
WATER DEPTH (ft)	FIRST 75	COMPL. – 24 HRS. 71.6			

DEPTH (feet)	DESCRIPTION	WELL LOG	SAMPLE INFORMATION No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (Time)	REMARKS
	Asphalt						1230	Background OVA reading = 4-6 ppm
	Moist, grayish brown, SILTY CLAY with some SAND (CL).							
5	Moist, dark yellowish brown, SILTY CLAY (CL).							No odor.
10								
15								
20								
25								
30								
35	Lense of dark greenish black volcanic(?) angular gravel.							

Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 8741863D

LOG OF BORING WCC-4

Fig. B-3-1

WOODWARD-CLYDE CONSULTANTS

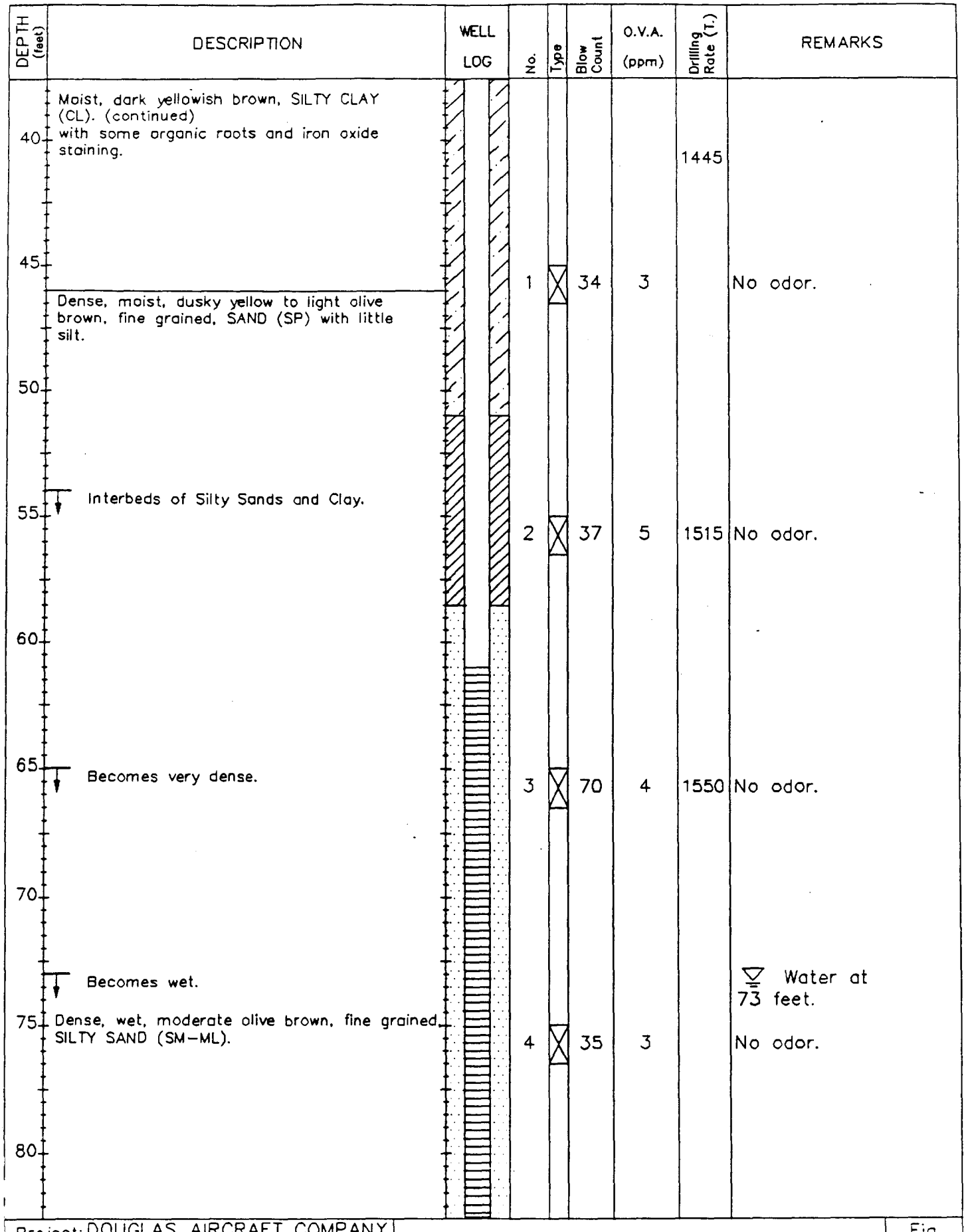
DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	(continued) Very dense, wet, light olive brown, fine grained SAND (SP) with little silt.							
90	Moist, light olive brown, SILTY CLAY (ML-CL).		6	X	N.R.	8	1700	No odor.
	Bottom of Boring at 91.5 feet.							Note: 45 gallons of city water used to offset hydrostatic head of flowing sands during well installation.
95								
100								
105								
110								
115								
120								
125								

Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 8741863D

CONT. LOG OF BORING WCC-4

Fig. B-3-3

WOODWARD-CLYDE CONSULTANTS



Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 8741863D

CONT. LOG OF BORING WCC-5

Fig. B-4-2

WOODWARD-CLYDE CONSULTANTS

BORING LOCATION	See Location Map			ELEVATION AND DATUM	Not Available
DRILLING AGENCY	A & R Drilling, Inc.	DRILLER	M. Romero	DATE STARTED 8-24-87	DATE FINISHED 8-24-87
DRILLING EQUIPEMENT	CME 45, 8-inch O.D.,H.S.A.			COMPLETION DEPTH (ft) 41	ROCK DEPTH (ft) –
TYPE OF WELL CASING	N/A	SCREEN PERFORATION	N/A	DIAMETER OF BORING (in.) 8	DIAMETER OF WELL (in.) –
No OF SAMPLES	DIST. –	UNDIST. 9	CORE –	LOGGED BY P. Glaesman	CHECKED BY M. Razmdjoo
WATER DEPTH (ft)	FIRST –	COMPL –	24 HRS. –		

DEPTH (feet)	DESCRIPTION	WELL LOG	SAMPLE INFORMATION No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (Time)	REMARKS
	Asphalt covering. Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous, 4-inch CLAYEY layer near surface. (FILL)		1	X	9	10	1230	Definite odor.
5	Loose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, micaceous, (FILL).		2	X	2	52	1240	Strong odor.
10	Color changing to gray with some yellowish brown mixed in. Less silt, micaceous (SP).(FILL)		3	X	2	600	1250	Strong odor.
	Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous.							
15			4	X	11	>1000	1300	Strong odor.
	Stiff, moist, olive brown, SANDY SILT (ML), micaceous.							
20			5	X	9	>1000	1310	Strong odor.
	Stiff to very stiff, moist, olive brown, CLAYEY SILT (ML).							
25			6	X	14	>1000	1320	Strong odor.
30			7	X	20	>1000	1335	Strong odor.
35	With some fine grained SAND (ML).		8	X	10	>1000	1345	Strong odor.

Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8741863C	LOG OF BORING 15TB	Fig. B-5-1

WOODWARD-CLYDE CONSULTANTS

BORING LOCATION	See Location Map			ELEVATION AND DATUM	Not Available
DRILLING AGENCY	A & R Drilling, Inc.	DRILLER	M. Romero	DATE STARTED 8-24-87	DATE FINISHED 8-24-87
DRILLING EQUIPEMENT	CME 45, 8-inch O.D., H.S.A.			COMPLETION DEPTH (ft) 41	ROCK DEPTH (ft) -
TYPE OF WELL CASING	N/A	SCREEN PERFORATION	N/A	DIAMETER OF BORING (in.) 8	DIAMETER OF WELL (in.) N/A
No OF SAMPLES	DIST. -	UNDIST. 9	CORE -	LOGGED BY P. Glaesman	CHECKED BY M. Razmdjoo
WATER DEPTH (ft)	FIRST -	COMPL -	24 HRS. -		

DEPTH (feet)	DESCRIPTION	WELL LOG	SAMPLE INFORMATION No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (Time)	REMARKS
	Asphalt covering. Medium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous. (FILL)		1	X	11	75	1500	Little odor.
5			2	X	2	200	1510	Sample was between the tank backfill and natural material. One edge of sample included natural material, SANDY SILT (ML)
	Stiff to very stiff, moist, yellowish brown, SANDY SILT (ML), micaceous.					30	1515	
10			3	X	16			No odor.
15			4	X	12	45	1530	Slight odor.
20			5	X	17	60	1540	Slight odor.
25			6	X	17	950	1545	Definite odor.
30	Olive brown, CLAYEY SILT layer (ML).		7	X	18	>1000	1600	Strang odor.
35			8	X	16	>1000	1610	

Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 87418630

LOG OF BORING 17TB

Fig. B-6-1

WOODWARD-CLYDE CONSULTANTS

BORING LOCATION: B-1 Tanks T-19 and T-20		ELEVATION AND DATUM:	
DRILLING AGENCY: Datum Exploration	DRILLER: Keith	DATE STARTED: 4 April 1986	DATE FINISHED: 4 April 1986
DRILLING EQUIPMENT: Mobile B-53, 9.5 Hollow Stem Auger		COMPLETION DEPTH (FT): 50	ROCK DEPTH (FT): –
DIAMETER AND TYPE OF WELL CASING: None Installed		NO. OF SAMPLES: DIST. –	UNDIST. 10 / CORE
TYPE OF PERFORATION: Not Applicable		WATER DEPTH (FT): FIRST –	COMPL. / 24 HRS. –
TYPE OF PERFORATION BACKFILL: No. 60 Sand (85%) / Bentonite Flour (15%)		LOGGED BY: M. Leach	CHECKED BY: B. Jacobs
TYPE OF SEAL: Asphaltum			

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	OVA (ppm): Sample	OVA (ppm): Backgn'd	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	Asphalt								
	Rust colored, SILTY SAND (SM)								
	Medium stiff, moist, dark brown, SANDY CLAY		0.0		1		6 4 3		
5	Becomes very moist								
			30		2		15 22 35		
10	Becoming light reddish brown and hard								
			34		3		6 12 16		
15	Becoming light brown and very stiff								
	Medium dense, moist, light brown, CLAYEY, fine-grained SAND (SC)		100		4		11 8 13		
20	Becoming lighter brown and drier								
			50		5		8 16 18		
25	Very stiff, moist, light brown, SANDY CLAY (CL)								
			45		6		8 15 30		
30	Very stiff, moist, light brown, CLAY (CL)								
	Very dense, light grayish-brown, fine-grained SAND (SP)		4		7		9 27 50 (4")		
35									

Project: DOUGLAS TORRANCE
Project No.: 41863A

LOG OF BORING B-1

Fig. B-7-1

LA/OR-0783-235R

WOODWARD-CLYDE CONSULTANTS

BOE-C6-0014531

BORING LOCATION	Boiler Room At T-19, 20 (C-6 Facility)		ELEVATION AND DATUM	Approximately 52 Feet MSL	
DRILLING AGENCY	Datum Exploration, Inc.	DRILLER Kit Stephens	DATE STARTED 12/29/86	DATE FINISHED 1/5/87	
DRILLING EQUIPMENT	Simco 2400SK, Datum D27-L (Dietrich Gasoline Engine)		COMPLETION DEPTH(FT) 51'	ROCK DEPTH(FT) –	
DIAMETER AND TYPE OF WELL CASING	6" Hollow Stem Auger; No Casing in Installed		NO. OF SAMPLES: DIST. –	UNDIST 20	CORE –
TYPE OF PERFORATION	N/A		WATER DEPTH (FT): FIRST –	COMPL. –	24 HRS –
TYPE OF PERFORATION BACKFILL	N/A		LOGGED BY: Jacobs/ Donaldson/ Gibson	CHECKED BY: Sd	
TYPE OF SEAL	Concrete, #60 Silca Sand (85%) and Bentonite (15%)				

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/ Time	REMARKS
	Concrete and pea gravel.								Hydrocarbon odor
	Stff, damp, olive to brown SILTY CLAY (CL-CH).			250	1	X	NR		
5				300	2	X	NR		Hydrocarbon odor and staining throughout boring.
10				140	3	X	NR		
15	Becomes olive to dark olive green.			440	4	X	NR		
20				>1000	5	X	NR		
25				560	6	X	NR		
30	Gravel lense (to 2"Ø).			460	7	X	NR		Drilling difficult- Stop drilling. Commence drilling at 31' on 1/5/87 with datum D27-L rig.
	Becomes hard and grey, sandy, and thinly laminated.								
35	Becomes silty.			>1000	7	X	75		

Project: DOUGLAS TORRANCE Project No.: 418638	LOG OF BORING B-2	Fig. B-8-1

LA/OR-0783-235R

WOODWARD-CLYDE CONSULTANTS

BORING LOCATION	Boiler Room at T-19, 20 (C-6 Facility)	ELEVATION AND DATUM	Appoximately 52 Feet MSL
DRILLING AGENCY	Datum Exploration, Inc / DRILLER Kit Stephens	DATE STARTED 1/6/87	DATE FINISHED 1/6/87
DRILLING EQUIPMENT	Datum D27-L (Dietrich Gasoline Engine)	COMPLETION DEPTH(FT) 31'	ROCK DEPTH(FT) –
DIAMETER AND TYPE OF WELL CASING	6" Hollow Stem Auger; No Casing Installed	NO. OF SAMPLES: DIST. –	UNDIST. 12 / CORE –
TYPE OF PERFORATION	N/A	WATER DEPTH (FT): FIRST None	COMPL. – / 24 HRS –
TYPE OF PERFORATION BACKFILL	N/A	LOGGED BY: S. Donaldson	CHECKED BY: Sd
TYPE OF SEAL	Concrete, #60 Silca Sand (85%) and Bentonite (15%)		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	Concrete								
	Dense, damp, light grey, fine SAND (SP) with FeO_2 staining and hydrocarbon odor.								
	Stiff, damp, dark brown SILTY CLAY (CL-CH).								
5				310	1	X	48		
10	Gravel lense (≤ 2"Ø). Becomes hard.			105	2	X	30 50/ 5"		
15	Medium dense, damp, grey CLAYEY SAND (SC) strong hydrocarbon odor.			62	3	X	27		Easier drilling
20	Becomes dense and greyish brown.			350	4	X	47		
25	Becomes very dense, grey, more SANDY (SC-SP).			260	5	X	65		
30				340	6	X	66		
	Bottom of Boring at 31 Feet.								
35									

Project: DOUGLAS AIRCRAFT Project No.: 41863B	LOG OF BORING B-3	Fig. B-9-1

LA/OR-0783-235R

WOODWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Type	Blow Count	O.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	Damp, gray, CLAYEY SILT (ML). on tubes.		6	X	N/A	700	1550	Strong odor.
45			7	X	11	400	1620	Strong odor.
	Damp, brown, SILTY fine SAND (SM-SP), micaceous.							
50			8	X	11	400	1645	Strong odor.
55			9	X	11	+1000	1710	
	Damp, light yellowish brown, CLAYEY SILT (ML).							
60			10	X	11	100	1750	Slight to moderate odor.
	Bottom of Boring at 60.5 feet.							Note: Angle drilled at 26°. No blow counts taken due to angle drilling.
65								
70								
75								
80								

Project: DOUGLAS AIRCRAFT COMPANY
Project No.: 41863B

CONT. LOG OF BORING B-4

Fig. B-10-2

WOODWARD-CLYDE CONSULTANTS

April 2, 1987

WOODWARD-CLYDE
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5557

WEST COAST ANALYTICAL SERVICE, INC.
ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: One (1) water sample
Date Received: 3-27-87
Purchase Order No: 41863B

The sample was analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results sheets.

Michael Shelton
Senior Chemist

D.J. Northington, Ph.D.
Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SAMPLE: MW-1(41)A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	03/27/87	GCMS FILENAME:	5557V3
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	04/01/87	DATE ANALYZED:	04/01/87
STANDARD ID:	V0A280	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	100UL		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	50
100-41-4	ETHYLBENZENE	ND	50
100-42-5	STYRENE	ND	50
95-47-6	TOTAL XYLENES	ND	50
108-41-8	M-CHLOROTOLUENE	ND	50
95-50-1	1,2-DICHLOROBENZENE	ND	50
541-73-1	1,3-DICHLOROBENZENE	ND	50
106-46-7	1,4-DICHLOROBENZENE	ND	50
120-82-1	1,2,4-TRICHLOROBENZENE	ND	50

Data Reporting Qualifiers

Value - If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.

ND - Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.

TR - Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

April 16, 1987

WOODWARD-CLYDE
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5677

WCAS
WEST COAST ANALYTICAL SERVICE, INC.
ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seven (7) water samples
Date Received: 4-13-87
Purchase Order No: 41863B

Three of the samples were analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results Sheets.

Michael Shelton
Senior Chemist

D.J. Northington, Ph.D.
Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD CLYDE
SAMPLE: MW-1,A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	04/13/87	GCMS FILENAME:	5677V2
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	04/15/87	DATE ANALYZED:	04/15/87
STANDARD ID:	V0A457	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	100UL		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	50.
100-41-4	ETHYLBENZENE	ND	50.
100-42-5	STYRENE	ND	50.
95-47-6	TOTAL XYLENES	ND	50.
108-41-8	M-CHLOROTOLUENE	ND	50.
541-73-1	1,3-DICHLOROBENZENE	ND	50.
106-46-7	1,4-DICHLOROBENZENE	ND	50.
95-50-1	1,2-DICHLOROBENZENE	ND	50.
120-82-1	1,2,4-TRICHLOROBENZENE	ND	50.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD CLYDE
SAMPLE: MW-1,B
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	04/13/87	GCMS FILENAME:	5677V3
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	04/15/87	DATE ANALYZED:	04/15/87
STANDARD ID:	VOA457	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	100UL		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	300.
74-83-9	BROMOMETHANE	ND	300.
75-01-4	VINYL CHLORIDE	ND	300.
75-00-3	CHLOROETHANE	ND	300.
75-09-2	METHYLENE CHLORIDE	ND	500.
67-64-1	ACETONE	ND	500.
107-02-8	ACROLEIN	ND	500.
107-13-1	ACRYLONITRILE	ND	500.
75-15-0	CARBON DISULFIDE	ND	50.
75-35-4	1,1-DICHLOROETHENE	2500.	50.
75-34-3	1,1-DICHLOROETHANE	ND	50.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	50.
109-99-9	TETRAHYDROFURAN	ND	50.
75-69-4	TRICHLOROFLUOROMETHANE	ND	50.
76-13-1	FREON-TF	ND	50.
106-93-4	ETHYLENE DIBROMIDE	ND	50.
123-91-1	1,4-DIOXANE	ND	50.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	50.
67-66-3	CHLOROFORM	ND	50.
107-06-2	1,2-DICHLOROETHANE	ND	50.
78-93-3	2-BUTANONE	ND	500.
71-55-6	1,1,1-TRICHLOROETHANE	120.	50.
16-23-5	CARBON TETRACHLORIDE	ND	50.
108-05-4	VINYL ACETATE	ND	300.
75-27-4	BROMODICHLOROMETHANE	ND	50.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	50.
78-87-5	1,2-DICHLOROPROPANE	ND	50.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	50.
79-01-6	TRICHLOROETHENE	3600.	50.
124-48-1	CHLORODIBROMOMETHANE	ND	50.
79-00-5	1,1,2-TRICHLOROETHANE	ND	50.
71-43-2	BENZENE	ND	50.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	50.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	500.
75-25-2	BROMOFORM	ND	50.
119-78-6	2-HEXANONE	ND	300.
108-10-1	4-METHYL-2-PENTANONE	ND	300.
127-18-4	TETRACHLOROETHENE	ND	50.
108-88-3	TOLUENE	ND	50.

WCAS

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD CLYDE
SAMPLE: MW-1,B

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD CLYDE
SAMPLE: TRIP BLANK
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	04/13/87	GCMS FILENAME:	5677V4
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	04/15/87	DATE ANALYZED:	04/15/87
STANDARD ID:	VOA457	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	5.0ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.
95-50-1	1,2-DICHLOROBENZENE	ND	1.
120-82-1	1,2,4-TRICHLOROBENZENE	ND	1.

Woodward-Clyde Consultants

SHIPMENT NO.: _____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

DATE 4/13/87

PROJECT NAME: Douglas - Torrance

PROJECT NO.: 41863B

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
MW-1(41)A		Water	Bailed	40 ml Vial	Cool		8240
" B		"	"	40 ml Vial	"		8240
" C		"	"	500 ml Amber	"		Hold SAMPLES
" D		"	"	500 ml Amber	"		"
" E		"	"	500 ml Amber	"		"
" F		"	"	500 ml Amber	"		"
TMP Blank		"		40 ml Vial	"		8240

Total Number of Samples Shipped: 7 | Sampler's Signature: Brian Quick

Relinquished By: Signature: Brian Quick; Printed Name: Brian Quick; Company: Woodward-Clyde; Reason: Analysis	Received By: Signature: Margaret Felt; Printed Name: Margaret Felt; Company: WCAS	Date: 4/13/87; Time: 4:50
Relinquished By: Signature: ; Printed Name: ; Company: ; Reason:	Received By: Signature: ; Printed Name: ; Company:	Date: / / ; Time:
Relinquished By: Signature: ; Printed Name: ; Company: ; Reason:	Received By: Signature: ; Printed Name: ; Company:	Date: / / ; Time:
Relinquished By: Signature: ; Printed Name: ; Company: ; Reason:	Received By: Signature: ; Printed Name: ; Company:	Date: / / ; Time:

Special Shipment Handling Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-2A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/02/87	GCMS FILENAME:	7621V1
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/11/87	DATE ANALYZED:	11/11/87
STANDARD ID:	VOA608	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	5ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	5.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	5.	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	14.	1.
124-48-1	CHLORODIBROMOMETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	5.
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	6.	1.

WCAS

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-2A

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-3A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/02/87	GCMS FILENAME:	7621V3
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/11/87	DATE ANALYZED:	11/11/87
STANDARD ID:	VOA608	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	5UL		

CAS #	COMPOUND	CONC: UG/ML(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.
95-50-1	1,2-DICHLOROBENZENE	ND	1.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-4A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/02/87	GCMS FILENAME:	7621V2
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/11/87	DATE ANALYZED:	11/11/87
STANDARD ID:	VOA608	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	5ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	360.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE	2.	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	2.	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	14.	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	700.	1.
124-48-1	CHLORODIBROMOMETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	5.
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	ND	1.

WCAS

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-4A

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	CIS-1,2-DICHLOROETHYLENE	VOA	10.

Woodward-Clyde Consultants

SHIPMENT NO.: _____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

DATE 11 12 87

PROJECT NAME: Douglas

PROJECT NO.: 87418630 - 1000

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
MW-2 A		Water	Bailer	Glass Vial	ICED	NONE	8240
" " B							Hold
MW-3 A						HCl	8240
" " B							Hold
MW-4 A							8240
" " B							Hold
MW-3RB/A				none			[redacted] Hold
" " /B		↓	↓	↓	↓	↓	Hold

Total Number of Samples Shipped: 8 | Sampler's Signature: [signature]

Relinquished By: Signature [signature] Printed Name Glen Jacobs Company [illegible] Reason Transport	**Received By:** Signature [signature] Printed Name Mel Franklin Company A-1	Date 11/21/87 Time
Relinquished By: Signature [signature] Printed Name Mel Franklin Company A-1 Reason	**Received By:** Signature [signature] #7621 Printed Name Rita Low Company WCC	Date 11/21/87 Time 1720
Relinquished By: Signature Printed Name Company Reason	**Received By:** Signature Printed Name Company	Date / / Time
Relinquished By: Signature Printed Name Company Reason	**Received By:** Signature Printed Name Company	Date / / Time

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

LA/OR-0183-42

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-1A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/13/87	GCMS FILENAME:	7761V2
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/16/87	DATE ANALYZED:	11/16/87
STANDARD ID:	V0A450	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	250UL		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	20.
100-41-4	ETHYLBENZENE	ND	20.
100-42-5	STYRENE	ND	20.
95-47-6	TOTAL XYLENES	ND	20.
108-41-8	M-CHLOROTOLUENE	ND	20.
95-50-1	1,2-DICHLOROBENZENE	ND	20.
541-73-1	1,3-DICHLOROBENZENE	ND	20.
106-46-7	1,4-DICHLOROBENZENE	ND	20.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-2A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/13/87	GCMS FILENAME:	7761V4
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/16/87	DATE ANALYZED:	11/16/87
STANDARD ID:	V0A450	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	5ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	2.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	4.	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	5.
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	1.	1.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-2A

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-3A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/13/87	GCMS FILENAME:	7761V6
LEVEL:	MEDIUM	MATRIX:	WATER
DATE PREPARED:	11/17/87	DATE ANALYZED:	11/17/87
STANDARD ID:	VOA451	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	5UL		

CAS #	COMPOUND	CONC: UG/ML(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
95-50-1	1,2-DICHLOROBENZENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-4A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	11/13/87	GCMS FILENAME:	7761V8
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	11/17/87	DATE ANALYZED:	11/17/87
STANDARD ID:	VOA451	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	500UL		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	50.
74-83-9	BROMOMETHANE	ND	50.
75-01-4	VINYL CHLORIDE	ND	50.
75-00-3	CHLOROETHANE	ND	50.
75-09-2	METHYLENE CHLORIDE	ND	100.
67-64-1	ACETONE	ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	10.
75-35-4	1,1-DICHLOROETHENE	1200.	10.
75-34-3	1,1-DICHLOROETHANE	ND	10.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	10.
109-99-9	TETRAHYDROFURAN	ND	10.
75-69-4	TRICHLOROFLUOROMETHANE	ND	10.
76-13-1	FREON-TF	ND	10.
106-93-4	ETHYLENE DIBROMIDE	ND	10.
123-91-1	1,4-DIOXANE	ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	10.
67-66-3	CHLOROFORM	ND	10.
107-06-2	1,2-DICHLOROETHANE	ND	10.
78-93-3	2-BUTANONE	ND	100.
71-55-6	1,1,1-TRICHLOROETHANE	35.	10.
16-23-5	CARBON TETRACHLORIDE	ND	10.
108-05-4	VINYL ACETATE	ND	50.
75-27-4	BROMODICHLOROMETHANE	ND	10.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	10.
78-87-5	1,2-DICHLOROPROPANE	ND	10.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	10.
79-01-6	TRICHLOROETHENE	690.	10.
124-48-1	DIBROMOCHLOROMETHANE	ND	10.
79-00-5	1,1,2-TRICHLOROETHANE	ND	10.
71-43-2	BENZENE	ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	100.
75-25-2	BROMOFORM	ND	10.
119-78-6	2-HEXANONE	ND	50.
108-10-1	4-METHYL-2-PENTANONE	ND	50.
127-18-4	TETRACHLOROETHENE	ND	10.
108-88-3	TOLUENE	ND	10.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-4A

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	NONE FOUND	VOA	

Woodward-Clyde Consultants

SHIPMENT NO.:_____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT NAME: Douglas Aircraft

DATE 11/13/87

PROJECT NO.: 87418623.E

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
WCC-1A		Water	Bailer	Glass Vial	ICED	None	8240
" " B							Hold
WCC-2A							8240
" " B							Hold
WCC-3A							8240
" " B							Hold
WCC-4A							8240
" " B		↓	↓	↓	↓	↓	Hold
							RUSH

Total Number of Samples Shipped: 8 | Sampler's Signature: Brian Hunt

Relinquished By: Signature: Brian Hunt Printed Name: Brian Hunt Company: Woodward-Clyde Reason: Analysis	Received By: Signature: Rita Lee #7761 Printed Name: Rita Lee Company: WCAS	Date: 11/13/87 Time: 2:50 pm
Relinquished By: Signature / Printed Name / Company / Reason	Received By: Signature / Printed Name / Company	Date: / / Time
Relinquished By: Signature / Printed Name / Company / Reason	Received By: Signature / Printed Name / Company	Date: / / Time
Relinquished By: Signature / Printed Name / Company / Reason	Received By: Signature / Printed Name / Company	Date: / / Time

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

LA/OR-0183-421

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-5A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	12/01/87	GCMS FILENAME:	7911V1
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	12/09/87	DATE ANALYZED:	12/09/87
STANDARD ID:	VOA626	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	5ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
71-43-2	BENZENE	ND	1.
75-27-4	BROMODICHLOROMETHANE	ND	1.
75-25-2	BROMOFORM	ND	1.
74-83-9	BROMOMETHANE	ND	5.
78-93-3	2-BUTANONE (MEK)	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-90-7	CHLOROBENZENE	ND	1.
75-00-3	CHLOROETHANE	ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
67-66-3	CHLOROFORM	ND	1.
74-87-3	CHLOROMETHANE	ND	5.
108-41-8	M-CHLOROTOLUENE	ND	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
75-35-4	1,1-DICHLOROETHYLENE	7.	1.
156-60-5	TRANS-1,2-DICHLOROETHYLENE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
123-91-1	1,4-DIOXANE	ND	20.
100-41-4	ETHYLBENZENE	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
76-13-1	FREON-TF	ND	1.
119-78-6	2-HEXANONE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
108-10-1	4-METHYL-2-PENTANONE (MIBK)	ND	5.
100-42-5	STYRENE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
127-18-4	TETRACHLOROETHYLENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.

WCAS

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-5A

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/L(PPB)
1	NONE FOUND	VOA	

Woodward-Clyde Consultants

SHIPMENT NO.:_____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

DATE 12/7/87

PROJECT NAME: Douglas Aircraft

PROJECT NO.: 3741863D-1000

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
WCC-5A		Water	Bailer	Glass Vial	ICED	NONE	8240, 8015
WCC-5B		↓	↓	↓	↓	↓	Hold
FBWCC-5		↓	↓	↓	↓	↓	Hold

Total Number of Samples Shipped: 3 | Sampler's Signature: Brian Jacobs

Relinquished By: Signature: Brian Jacobs; Printed Name: Brian Jacobs; Company: Woodward Clyde; Reason: Transport	Received By: Signature: H McInnis; Printed Name: Henry McInnis; Company: W-C	Date: 12/7/87; Time: 12:45 PM
Relinquished By: Signature: H McInnis; Printed Name: Henry McInnis; Company: W-C; Reason:	Received By: Signature: [illegible]; Printed Name: [illegible]; Company: [illegible]	Date: 12/7/87; Time: [illegible]
Relinquished By: Signature: ; Printed Name: ; Company: ; Reason:	Received By: Signature: ; Printed Name: ; Company:	Date: / /; Time:
Relinquished By: Signature: ; Printed Name: ; Company: ; Reason:	Received By: Signature: ; Printed Name: ; Company:	Date: / /; Time:

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

LA/OR-0183-421

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: WCC-5A
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	01/08/88	GCMS FILENAME:	8253V1
LEVEL:	LOW	MATRIX:	WATER
DATE PREPARED:	01/12/88	DATE ANALYZED:	01/12/88
STANDARD ID:	VOA484	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	5ML		

CAS #	COMPOUND	CONC: UG/L(PPB)	DETECTION LIMIT
108-88-3	TOLUENE	ND	1.
71-55-6	1,1,1-TRICHLOROETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
79-01-6	TRICHLOROETHYLENE	10.	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
95-47-6	TOTAL XYLENES	ND	1.

WCAS

Data Reporting Qualifiers

Value - If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.

ND - Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.

TR - Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

December 31, 1986

WOODWARD-CLYDE
203 No. Golden Circle Drive
Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4932

WCAS
WEST COAST ANALYTICAL SERVICE, INC.
ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Two (2) soil samples
Date Received: 12-29-86
Purchase Order No: Project 41863B

The samples were analyzed for total petroleum hydrocarbon content using EPA method 418.1. The results are listed below:

Parts Per Million

Sample No.	Total Petroleum Hydrocarbons
B2-2-3 at 5'	5000
B2-7-3 at 30'	6000
Detection Limit	10

Date Analyzed: 12-30-86

Isabella Gundran
Chemist

D.J. Northington, Ph.D.
Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213 948-2225

January 9, 1987

WOODWARD-CLYDE
203 N. Golden Circle Drive
Santa Ana, CA 92705

WCAS
WEST COAST
ANALYTICAL
SERVICE, INC.
ANALYTICAL CHEMISTS

Attn: Kevin Gibson

JOB NO. 4968

LABORATORY REPORT

Samples: Nineteen (19) soil samples
Date Received: 1-6-87
Purchase Order No: 41863B

Ten (10) samples were analyzed for total petroleum hydrocarbons by EPA method 418.1. The results are reported below:

	Parts Per Million
Sample.No.	Total Petroleum Hydrocarbons
2-7-4	14000
2-8-4	2000
2-9-4	2000
2-10-4	19000
3-1-4	2900
3-2-4	27
3-3-4	1200
3-4-4	4400
3-5-3	13000
3-6-3	4100
Detection Limit	10

Date Extracted: 1-8-87
Date Analyzed: 1-8-87

Isabelle Gundran
Chemist.

D.J. Northington, Ph.D.
Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

June 5, 1987

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WEST COAST
ANALYTICAL
SERVICE, INC.
ANALYTICAL CHEMISTS

WOODWARD-CLYDE
203 N. Golden Circle Drive
Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 6039

LABORATORY REPORT

Samples: Seventeen (17) soil samples
Date Received: 5-27-87
Purchase Order No: 41863B

Nine (9) soil samples were analyzed for total petroleum hydrocarbon content using EPA Method 418.1. The results are on Table I.

Table I

Parts Per Million

Sample No.	Total Petroleum Hydrocarbon
B-4-1-2	ND
B-4-2-2	15000
B-4-3-2	44000
B-4-4-2	8200
B-4-5-2	28000
B-4-6-2	6000
B-4-7-2	1500
B-4-9-2	16000
B-4-10-2	ND
Detection Limit:	10

ND - Not Detected
Date Analyzed: 6-4-87

Isabelle Gundran
Analytical Chemist

D.J. Northington, Ph.D.
Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 15TB-3-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V1
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	30.
74-83-9	BROMOMETHANE	ND	30.
75-01-4	VINYL CHLORIDE	ND	30.
75-00-3	CHLOROETHANE	ND	30.
75-09-2	METHYLENE CHLORIDE	ND	50.
67-64-1	ACETONE	ND	50.
107-02-8	ACROLEIN	ND	50.
107-13-1	ACRYLONITRILE	ND	50.
75-15-0	CARBON DISULFIDE	ND	5.
75-35-4	1,1-DICHLOROETHENE	18.	5.
75-34-3	1,1-DICHLOROETHANE	ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
76-13-1	FREON-TF	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
123-91-1	1,4-DIOXANE	ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5.
67-66-3	CHLOROFORM	ND	5.
107-06-2	1,2-DICHLOROETHANE	ND	5.
78-93-3	2-BUTANONE	ND	50.
71-55-6	1,1,1-TRICHLOROETHANE	570.	5.
16-23-5	CARBON TETRACHLORIDE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-27-4	BROMODICHLOROMETHANE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	5.
79-01-6	TRICHLOROETHENE	ND	5.
124-48-1	DIBROMOCHLOROMETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5.
71-43-2	BENZENE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	50.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE	ND	30.
108-10-1	4-METHYL-2-PENTANONE	ND	30.
127-18-4	TETRACHLOROETHENE	ND	5.
108-88-3	TOLUENE	56.	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 15TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/KG(PPB)
1	CHLORINATED HYDROCARBONS	VOA	300.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 15TB-4-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V7
LEVEL:	MEDIUM	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G:1ML,200UL:1ML,5		

CAS #	COMPOUND	CONC: UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	5.
100-41-4	ETHYLBENZENE	41.	5.
100-42-5	STYRENE	ND	5.
95-47-6	TOTAL XYLENES	460.	5.
108-41-8	M-CHLOROTOLUENE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 15TB-5-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V8
LEVEL:	MEDIUM	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G:1ML,100UL:1ML,5		

CAS #	COMPOUND	CONC: UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	50.
74-83-9	BROMOMETHANE	ND	50.
75-01-4	VINYL CHLORIDE	ND	50.
75-00-3	CHLOROETHANE	ND	50.
75-09-2	METHYLENE CHLORIDE	ND	100.
67-64-1	ACETONE	ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	10.
75-35-4	1,1-DICHLOROETHENE	ND	10.
75-34-3	1,1-DICHLOROETHANE	ND	10.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	10.
109-99-9	TETRAHYDROFURAN	ND	10.
75-69-4	TRICHLOROFLUOROMETHANE	ND	10.
76-13-1	FREON-TF	ND	10.
106-93-4	ETHYLENE DIBROMIDE	ND	10.
123-91-1	1,4-DIOXANE	ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	10.
67-66-3	CHLOROFORM	ND	10.
107-06-2	1,2-DICHLOROETHANE	ND	10.
78-93-3	2-BUTANONE	1800.	100.
71-55-6	1,1,1-TRICHLOROETHANE	38.	10.
16-23-5	CARBON TETRACHLORIDE	ND	10.
108-05-4	VINYL ACETATE	ND	50.
75-27-4	BROMODICHLOROMETHANE	ND	10.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	10.
78-87-5	1,2-DICHLOROPROPANE	ND	10.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	10.
79-01-6	TRICHLOROETHENE	94.	10.
124-48-1	DIBROMOCHLOROMETHANE	ND	10.
79-00-5	1,1,2-TRICHLOROETHANE	ND	10.
71-43-2	BENZENE	ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	100.
75-25-2	BROMOFORM	ND	10.
119-78-6	2-HEXANONE	ND	50.
108-10-1	4-METHYL-2-PENTANONE	ND	50.
127-18-4	TETRACHLOROETHENE	ND	10.
108-88-3	TOLUENE	6300.	10.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 15TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/G(PPM)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-2-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	5.
100-41-4	ETHYLBENZENE	ND	5.
100-42-5	STYRENE	ND	5.
95-47-6	TOTAL XYLENES	ND	5.
108-41-8	M-CHLOROTOLUENE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-3-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V3
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	30.
74-83-9	BROMOMETHANE	ND	30.
75-01-4	VINYL CHLORIDE	ND	30.
75-00-3	CHLOROETHANE	ND	30.
75-09-2	METHYLENE CHLORIDE	ND	50.
67-64-1	ACETONE	ND	50.
107-02-8	ACROLEIN	ND	50.
107-13-1	ACRYLONITRILE	ND	50.
75-15-0	CARBON DISULFIDE	ND	5
75-35-4	1,1-DICHLOROETHENE	ND	5.
75-34-3	1,1-DICHLOROETHANE	ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
76-13-1	FREON-TF	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
123-91-1	1,4-DIOXANE	ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5.
67-66-3	CHLOROFORM	ND	
107-06-2	1,2-DICHLOROETHANE	ND	
78-93-3	2-BUTANONE	ND	50.
71-55-6	1,1,1-TRICHLOROETHANE	36.	5.
16-23-5	CARBON TETRACHLORIDE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-27-4	BROMODICHLOROMETHANE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	
79-01-6	TRICHLOROETHENE	ND	
124-48-1	DIBROMOCHLOROMETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5.
71-43-2	BENZENE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	50.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE	ND	30.
108-10-1	4-METHYL-2-PENTANONE	ND	30.
127-18-4	TETRACHLOROETHENE	ND	5.
108-88-3	TOLUENE	8.	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/KG(PPB)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-5-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V4
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	5.
100-41-4	ETHYLBENZENE	ND	5.
100-42-5	STYRENE	ND	5.
95-47-6	TOTAL XYLENES	ND	5.
108-41-8	M-CHLOROTOLUENE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-7-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	08/24/87	GCMS FILENAME:	6926V11
LEVEL:	MEDIUM	MATRIX:	SOIL
DATE PREPARED:	09/01/87	DATE ANALYZED:	09/01/87
STANDARD ID:	VOA397	INSTRUMENT ID:	5101
SAMPLE AMOUNT:	1.0G:1ML,200UL:1ML,5		

CAS #	COMPOUND	CONC: UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	30.
74-83-9	BROMOMETHANE	ND	30.
75-01-4	VINYL CHLORIDE	ND	30.
75-00-3	CHLOROETHANE	ND	30.
75-09-2	METHYLENE CHLORIDE	ND	50.
67-64-1	ACETONE	ND	50.
107-02-8	ACROLEIN	ND	50.
107-13-1	ACRYLONITRILE	ND	50.
75-15-0	CARBON DISULFIDE	ND	5.
75-35-4	1,1-DICHLOROETHENE	ND	5.
75-34-3	1,1-DICHLOROETHANE	ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
76-13-1	FREON-TF	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
123-91-1	1,4-DIOXANE	ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5
67-66-3	CHLOROFORM	ND	5.
107-06-2	1,2-DICHLOROETHANE	ND	5.
78-93-3	2-BUTANONE	810.	50.
71-55-6	1,1,1-TRICHLOROETHANE	ND	5.
16-23-5	CARBON TETRACHLORIDE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-27-4	BROMODICHLOROMETHANE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	5.
79-01-6	TRICHLOROETHENE	ND	5.
124-48-1	DIBROMOCHLOROMETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5.
71-43-2	BENZENE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	50.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE	ND	30.
108-10-1	4-METHYL-2-PENTANONE	840.	30.
127-18-4	TETRACHLOROETHENE	ND	5.
108-88-3	TOLUENE	ND	5.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: 17TB-7-3

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/G(PPM)
1	NONE FOUND	VOA	

Woodward-Clyde Consultants

CHAIN OF CUSTODY RECORD

SHIPMENT NO.: 3

PAGE 1 OF 2

DATE 8/24/87

PROJECT NAME: DOUGLAS AIRCRAFT

PROJECT NO.: 8741863C-1000

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
15TB-1-3	15TB	SOIL	MOD.	BRASS TUBE	ICE	NONE	CONTACT
15TB-2-3			CALIF.				ALISTAIRE
15TB-3-3						8240	CALLENDAR
15TB-4-3						"	714-835-6886
15TB-5-3						"	
15TB-6-3							
15TB-7-3							
15TB-8-3							
15TB-9-3							
17TB-1-3	17TB						
17TB-2-3						8240	
17TB-3-3						"	
17TB-4-3							
17TB-5-3						8240	
17TB-6-3							
17TB-7-3						8240	
17TB-8-3							
17TB-9-3							
19TW-1-3	19TW						
19TW-2-3							

Total Number of Samples Shipped: 32 | Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature [signature] Printed Name DAN INGEBRETSON Company WCC Reason	Signature [signature] Printed Name G.K. [illegible] Company WCAS #6926	Date 8/24/87 Time 1805
Signature Printed Name Company Reason	Signature Printed Name Company	Date / / Time
Signature Printed Name Company Reason	Signature Printed Name Company	Date / / Time
Signature Printed Name Company Reason	Signature Printed Name Company	Date / / Time

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

LA OR-0183-421

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-3-2-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	10/29/87	GCMS FILENAME:	7592V1
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	11/10/87	DATE ANALYZED:	11/10/87
STANDARD ID:	VOA607	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	30.
74-83-9	BROMOMETHANE	ND	30.
75-01-4	VINYL CHLORIDE	ND	30.
75-00-3	CHLOROETHANE	ND	30.
75-09-2	METHYLENE CHLORIDE	ND	50.
67-64-1	ACETONE	ND	50.
107-02-8	ACROLEIN	ND	50.
107-13-1	ACRYLONITRILE	ND	50.
75-15-0	CARBON DISULFIDE	ND	5.
75-35-4	1,1-DICHLOROETHENE	53.	5.
75-34-3	1,1-DICHLOROETHANE	98.	5.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
76-13-1	FREON-TF	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
123-91-1	1,4-DIOXANE	ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	5.
67-66-3	CHLOROFORM	ND	5.
107-06-2	1,2-DICHLOROETHANE	ND	5.
78-93-3	2-BUTANONE	ND	50.
71-55-6	1,1,1-TRICHLOROETHANE	70.	5.
16-23-5	CARBON TETRACHLORIDE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-27-4	BROMODICHLOROMETHANE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	5.
79-01-6	TRICHLOROETHENE	ND	5.
124-48-1	CHLORODIBROMOMETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5.
71-43-2	BENZENE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	50.
75-25-2	BROMOFORM	ND	5.
119-78-6	2-HEXANONE	ND	30.
108-10-1	4-METHYL-2-PENTANONE	ND	30.
127-18-4	TETRACHLOROETHENE	ND	5.
108-88-3	TOLUENE	590.	5.

WCAS

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-3-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

	COMPOUND NAME	FRACTION	CONCENTRATION UG/KG(PPB)
1	NONE FOUND	VOA	

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE
SITE: DOUGLAS AIRCRAFT
SAMPLE: MW-3-3-3
ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	10/29/87	GCMS FILENAME:	7592V2
LEVEL:	LOW	MATRIX:	SOIL
DATE PREPARED:	11/10/87	DATE ANALYZED:	11/10/87
STANDARD ID:	VOA607	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1.0G		

CAS #	COMPOUND	CONC: UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	ND	5.
100-41-4	ETHYLBENZENE	ND	5.
100-42-5	STYRENE	ND	5.
95-47-6	TOTAL XYLENES	ND	5.
108-41-8	M-CHLOROTOLUENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.

Data Reporting Qualifiers

Value - If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.

ND - Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.

TR - Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.